REMARKS

Upon entry of this amendment, claims 1-17 are pending. By the present amendment, claims 1, 2, 5, 8, 9 and 13-15 have been amended for clarity. Favorable reconsideration of the application is respectfully requested.

The rejection of claims 1, 3-7 and 16 under 35 U.S.C. §112, first paragraph is respectfully traversed. Without acquiescing in the rejection, the claims have been amended, and the rejection is rendered moot. Accordingly reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 1-17 under 35 U.S.C. §112, second paragraph is respectfully traversed. Without acquiescing in the rejection, the claims have been amended for clarity. Accordingly, the rejection is overcome, and reconsideration and withdrawal thereof are respectfully requested.

The rejection of claims 1-17 under 35 U.S.C. §103(a) over Clarke et al. (U.S. Patent 5,550,914, hereinafter "Clarke") in view of Weisser (WO 95/35633) is respectfully traversed. Without acquiescing in the rejection, it is noted that claims 1, 2, 5, 8, 9 and 13-15 have been amended for clarity. Support for these amendments appears at various places throughout the specification, for example, see page 7, lines 23 and 24, page 6, line 17, and page 8, lines 27-29. Accordingly, the rejection will be discussed with respect to the claims as amended.

At the outset, with respect to the detailed analysis provided in the Office Action in response to the arguments presented in the last amendment, the analysis alleges that Clarke discloses determining if a value (although it is not specified exactly which value, as discussed below) is in a set and if so performing a general action by modifying the MSU data. However, the analysis misses a fundamental point with respect to the claimed invention. In particular, the significant aspect of the claimed invention that is absent from the analysis in the Office Action is an analysis of the level at which such processes are being performed. This fundamental distinction cannot be ignored in arriving at an obviousness conclusion.

It may be instructive to provide an overview of how packet based communications networks operate to assist the Examiner in appreciating the separate but related concepts of low-level signalling parts of a packet of data, and the low-level signalling protocol layer which successively deals with packets of data.

The well-known OSI (Open Systems Interconnection) reference model describes 7 layers. When sending information across a packet based network, the network generally functions in a layered manner as envisaged in the OSI reference model. According to this model, a computer application which wants to send some data over the network will interact directly with a seventh layer protocol.

The seventh layer protocol may then perform some functions on the data and will then contact a sixth layer protocol which performs further processing and then contacts a fifth layer protocol, etc. Some data maybe added to the original "user" data desired to be communicated by any protocol layer, but such data is intended for use only by the corresponding protocol layer on the destination node (or intermediate nodes for the lowest level protocols), and it will be stripped out before any data is passed up at the destination node to the immediately higher layer protocol function running on the destination node.

The lowest three layers of the OSI reference model are layer 3, the network layer; layer 2 the link layer; and layer 1, the physical layer. These lowest three levels are generally considered to be "low-level." If one considers the SS7 signalling system in comparison to the OSI reference model, it is apparent that the low-level Message Transfer Part (MTP)levels 1, 2 and 3 correspond with the lowest three layers of the OSI reference model, namely the physical, data link and network layers respectively. The higher four layers of the OSI reference model do not have directly corresponding layers in SS7. Rather there are a number of protocols which sit above the MTP levels. For example, the ISDN User Part (ISUP) is a protocol which corresponds to all four of the upper layers of the OSI reference model. From the above, it is clear that with reference to SS7, low level

corresponds to the MTP which in turn corresponds to the lowest three levels of the OSI reference model.

Going on now to consider the SS7 system in particular, when a message is to be sent over an SS7 network (e.g., an ISDN call set-up message) the high level protocols (e.g., ISDN User Part) will formulate a suitable message and send this to the MTP level 3 protocol running on the originating node. The MTP level 3 (e.g., level 3 fields, SLS, OPC, DPC, SIO), selects a link for the message to be output on and then sends the message on to the appropriate MTP level 2 protocol corresponding to the selected link. MTP level 2 is a link layer protocol, and thus is concerned only with transmitting signals onto and receiving signals from a single link. If the node is a switching node (e.g., trunk switch 3 in Figure 1 or reference point A in Figure 2 of the present application), it will have a number of links coming into (going out of) it, each of which will necessarily have its own link layer MTP level 2 protocol function running on the node for transmitting and receiving messages onto and from its corresponding link. The message is then transmitted over the selected link to the node at the other end of the link which strips off the MTP level 2 fields and passes the resulting message up to its MTP level 3 protocol function for further processing. If the node is the destination node, the MTP level 3 protocol function strips off the level 3 fields and then passes the resulting message up to the appropriate higher level protocol (e.g.,

ISDN User Part). Otherwise, the MTP level 3protocol function selects an outgoing link on which to forward on the message and passes the message to the appropriate MTP level 2 protocol function, etc.

The MTP level 3 is concerned with routing the encapsulated message across the SS7 network over multiple links and their corresponding nodes, and is therefore particularly relevant to switching nodes which need to select which of a plurality of possible outward links is the correct one for sending the message on to its desired destination node. Of course, the MTP level 3 is also relevant to the origin node as it specifies the destination node to which the message is to be sent, and it is also relevant to the destination node as it determines that the message has reached its destination and should therefore be passed up to the appropriate higher layer.

Turning now to Clarke, it is noted that the "message interceptors" with which Clarke et al is concerned are intended to be placed in the middle of a link. These message interceptors simply intercept messages travelling along their link. They do *not* generate new messages (i.e., they are never an origin node), nor are any messages ever intended to be sent to them as the final point (i.e., they are never a destination node). Furthermore, they never need to make a choice as to which link to transmit a message onto (if they come from the right, the messages are always passed out on the left and vice versa). Thus it is clear that these

message interceptors have no need of an MTP layer 3 function and it is likewise clear from Figures 5 to 7 that in most proposed embodiments they do not have such a function (note they do have a level 2 function called the "LEVEL 2 PRTCL ENGN"). The message interceptors instead go straight from level 2 processing to *pseudo high level* processing in which the contents of the entire message (after the level 2 parts have been stripped out) are looked at. It is at this high level stage that the comparison referred to in the Office Action takes place in Clarke. It is also noted that in the embodiment illustrated in Figure 3 in which there is an MTP level 3 function, the MTP level 3 function is described as being completely conventional and the message interception and "overwriting" takes place in blocks 91 and 92 which lie "above" the MTP level 3 function and again therèfore represent *high level* functions.

Therefore, it is abundantly clear that Clarke does not disclose or suggest the claimed overwriting step being performed within a *lower level* of a messaging protocol running on the node/signalling link hardware. Instead, and in complete contrast, such overwriting occurs at the *highest* level of processing carried out on the node, which level is clearly above level 2 and also level 3. Thus, on reading Clarke, a person skilled in the art would be *taught away* from performing such a comparison at a low level and would rather be taught to perform such comparison

at the *highest* possible level (as for example is done in Weisser, as has been noted exhaustively in previous responses).

Although Clarke is unclear as to the actual physical structure of the message interceptors, it is clear that if they did have separate signalling link hardware for performing the level 2 and/or 3 functions separately from the higher level processing (as is the case in nearly all switching nodes), the overwriting step would *not* be performed on this hardware as is claimed in the present claim as amended but rather would be performed on the hardware dedicated to carrying out the higher level processing.

Moreover, Clarke fails to teach or suggest overwriting a control field which has the property that the subsequent handling of the said signal by the network is controlled according to the overwritten value of the control field as set forth in the claims. Instead, Clarke teaches only overwriting a part of the high level contents of the message (e.g., to perform a syntax translation for ensuring that queries to a database held at SCP 50 are in the correct format for the database).

Additionally, according to example claims of the instant application, an instance of the overwriting function/subroutine is provided for each link. This becomes much more efficient and easy to do if one provides the function as part of the signalling link function as claimed in the present application. It has the benefit that the processing overhead for performing the security function is spread over a

large number of different functions; and since in most normal node devices these functions are performed by their own dedicated signalling link hardware, it is performed at no cost to the higher level hardware used for carrying out higher level functions. Furthermore, since the functionality is provided for each link, it becomes easier to determine what values are allowable and what are not for any particular message (if there is an agreement with that a particular node can only directly access a one other specified particular node, any messages coming in over a link from that node should have a specified OPC and DPC therefore the subroutine for that particular node can be given the correct values and no decision ever need be made about which particular link on which the message arrived).

It is respectfully submitted that Weisser fails to overcome the fundamental deficiencies noted above with respect to Clarke. In particular, there is no teaching or suggestion in Weisser of the specifically recited features being performed within a low level of a message protocol running on a node. If anything, Weisser teaches the *opposite*.

Therefore, it is respectfully submitted that Weisser does not overcome the fundamental deficiencies noted above with respect to Clarke. Thus, even if, *arguendo*, the combination of Clarke and Weisser were proper, the combination nevertheless fails to render the claimed invention obvious. For example, neither reference, either singly or in combination, discloses, teaches or suggests the

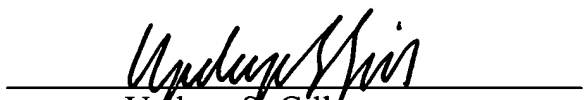
claimed feature of overwriting the control field value with a value from a restricted subset of values and doing so at a lower level of a messaging protocol. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, it is respectfully submitted that the entire application is in condition for allowance. Favorable reconsideration of the application and prompt allowance of the claims are earnestly solicited.

Should the Examiner deem that further issues require resolution prior to allowance, the Examiner is invited to contact the undersigned attorney of record at the telephone number set forth below.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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